

# TM03

## Poster Session

15:40-17:40

Chair1 : Taechon Ahn ( Wonkwang University, Korea )

Room : Base 2nd Floor-Zillertal

Chair2 :

TM03-31

### A modified strategy for DNA coding based genetic algorithm and its experiment

Kyungwon Jang, Taechon Ahn(Wonkwang Univ., KOREA),  
Dongyoon Lee(Joongbu Univ., KOREA), Seonik Kim, Jinhyun  
Kang(Wonkwang Univ., KOREA)

In the fuzzy applications and theories, it is very important to consider how to design the optimal fuzzy model from short training data, in order to construct the reasonable fuzzy model for identifying the practical process. There are several concerns to be confirmed for efficient fuzzy model design. One of concern is the optimization problem of the fuzzy model. In various applications, the genetic algorithm is widely applied to obtain optimal fuzzy model and other cases that adopt evolutionary mechanism of the nature. If we use natural selection and multiplication operation of the genetic algorithm, early convergence to local minimum can be occurred. In other word, we can find only optimum ...

TM03-32

### Immune Based 2-DOF PID Controller Design for Complex Process Control

Dong Hwa Kim(Hanbat Nat'l Univ., KOREA)

Abstract-In the thermal power plant, it is difficult to maintain strict control of the steam temperature in order to avoid thermal stress, because of variation of the heating value according to the fuel source, the time delay of changes in main steam temperature versus changes in fuel flow rate, difficulty of control on the main steam temperature control and the reheater steam temperature control system owing to the dynamic response characteristics of changes in steam temperature and the reheater steam temperature, fluctuation of inner fluid water and steam flow rates widely during load-following operation.

Up to the present time, the PID controller has been used to operate this system. ...

TM03-33

### Robust Controller Implementation in DCS for a MIMO Paper-making Process with long transport delays

Ki Ho Kang(Korea Univ. of Tech. & Edu., KOREA), Bong Kuk Lee(LGIS R& D Center, KOREA), Kye-Young Lim(LGIS R&D Center, KOREA)

This paper presents a procedure of implementing a robust controller for a paper-making plant in DCSs. A paper-making process generally has triple problems to automatically tune its output qualities : Long transport delays which are not able to be simply linearized. The transfer matrix of the process is not square. And every plant model has some uncertainty in low and middle frequency region. To tackle these problems, a multi-input / multi-output (MIMO) plant model having some uncertainty was derived by considering some physical and mechanical principles of the process. Then a MIMO robust - controller is designed and implemented in a real DCS as function block type. Some special co...

TM03-34

### Anti-Windup Starting-Time Control Strategy for a First-Order-Plus-Dead-Time Model and Application of Extruder Temperature Control

Hitoshi Onogaki, Shuichi Yokoyama(Kogakuin Univ., JAPAN), Hiroto Hamane(Gunma Univ., JAPAN), Kazuyuki Kanouya(Kogakuin Univ., JAPAN)

- Introduction
- PID Control and Two-Degree-Of-Freedom Control
- Switching Actuating Value By the 100% Actuating Value
- Application of Extruder Temperature Control
- Conclusion